

Advanced Optical Techniques for the Determination of Compositional and Thickness of Strained SiGe Alloys for a Manufacturing Environment

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Strained SiGe alloys are important for devices used in electronic and optoelectronic applications. In particular, heterostructure bipolar transistors (HBT's) using SiGe in the base region are now being manufactured for high-speed digital and wireless communication circuits. Quick and accurate measurement of the alloy composition and layer thickness is essential for the high yield production of circuits using these devices. We report the use of a production worthy optical measurement system to non-invasively measure box and graded Ge profiles with Si overlayers on actual device wafers.